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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.     | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------|------------------|
| 10/074,355   | 02/11/2002  | Karen A. Moore       | B-128                   | 5743             |
| 7590   | 02/27/2004  |                      | EXAMINER                |                  |
| Stephen R. Christian<br>P. O. Box 1625<br>Idaho Falls, ID 83415-3899 |             |                      | FLETCHER III, WILLIAM P |                  |
|  |             |                      | ART UNIT                | PAPER NUMBER     |
|  |             |                      | 1762                    |                  |

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 10/074,355             | MOORE ET AL.        |
| <b>Examiner</b>              | <b>Art Unit</b>        |                     |
| William P. Fletcher III      | 1762                   |                     |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 11 February 2002.  
2a) This action is **FINAL**.                            2b) This action is non-final.  
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-68 is/are pending in the application.  
4a) Of the above claim(s) 1-12 and 32-68 is/are withdrawn from consideration.  
5) Claim(s) \_\_\_\_\_ is/are allowed.  
6) Claim(s) 13-31 is/are rejected.  
7) Claim(s) \_\_\_\_\_ is/are objected to.  
8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/11 and 10/14.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) Notice of Informal Patent Application (PTO-152)  
6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-12, drawn to a method of coating a pipeline interior surface, classified in class 427, subclass 230.
  - II. Claims 13-31, drawn to a method of forming conductive traces on a pipeline interior surface, classified in class 427, subclass 105.
  - III. Claims 32-68, drawn to an interior surface thermal spray system, classified in class 118, subclass 318.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions: have different modes of operation, in that the invention of group II requires the deposition of a conductive material, while the invention of group I does not; and have different functions and effects, in that the invention of group II results in a conductive trace or coating, while the invention of group I does not.

3. Inventions I and III and II and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this

case, the apparatus as claimed can be used to practice another and materially different process: a spray-coating process in which a surface other than the interior of a hollow article is coated.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Stephen R. Christian (Reg. No. 32,687) on 2/11/2004 a provisional election was made *without* traverse to prosecute the invention of group II, claims. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-12 and 32-68 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

**9. Claims 13 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsunaga et al. (US 6,197,168 B1).**

This reference teaches a method in which a layer of conductive material is deposited atop a layer of insulating material in the interior surface of a pipeline (3:25-35 and 13:58-14:13). Insofar as both the insulating and conductive layers are continuous and uniform, it is the examiner's position that they read on "consolidated."

***Claim Rejections - 35 USC § 103***

**10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various**

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al. (US 6,197,168 B1), as applied to claim 14 above, in further view of Matsumoto et al. (US 5,024,423 A).**

While Matsunaga teaches that the *conductive* material may be applied by thermal spraying (inclusive of plasma spraying) from a spray gun (15: 6-13), this reference does not explicitly require a particular means of application of the *insulating* material. The examiner notes, however, that the insulating material may be an oxide such as alumina, zirconia, titania, and silica (14:1-13). Consequently, one of ordinary skill would have looked to the prior art to find a suitable method of application of these materials. Matsumoto teaches that such materials may be applied to a substrate by plasma spraying from a spray gun (2:45-3:12 and claim 5). It would have been obvious to one of ordinary skill in the art to modify the method of Matsunaga so as to apply the insulating material by thermal (plasma) spraying from a spray gun, as suggested by Matsumoto. One of ordinary skill in the art would have been motivated to do so not only by the fact that the method Matsunaga already involves the use of a thermal (plasma) spray gun, but also by the teaching of Matsumoto that doing so is a suitable means for applying such insulating materials.

**13. Claims 16, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al. (US 6,197,168 B1) and Matsumoto et al. (US 5,024,423 A), as applied to claim 15 above, and further in view of Rubenstein (US 4,704,985 A).**

The combined teaching of Matsunaga and Matsumoto is detailed in the preceding paragraph. Neither of these references teach that spraying the insulating material comprises the steps recited in this claim. As noted above, it would have been obvious to one of ordinary skill in the art to apply the insulating material by thermal (plasma) spraying from a spray gun. Rubenstein teaches a method in which the interior surface of a hollow article is spray-coated utilizing a spray gun. The spray gun is attached to an extension arm, inserted into the interior area of the hollow article, and operated to spray said interior surface (abstract and Fig. 1). Such method results in long service life with little wear on the few moving parts of the coating apparatus (1:1-65). It would have been obvious to one of ordinary skill in the art to modify the method of Matsunaga in view of Matsumoto so as to spray the insulating material according to the method of Rubenstein. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of successfully coating the interior surface of the hollow article with the insulating material utilizing an apparatus with a long service life, little wear, and few moving parts.

With respect to claim 21, none of the cited references explicitly state separately cooling the extension arm. Doing so would have been obvious to one of ordinary skill in the art to prevent damage from overheating.

**14. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al. (US 6,197,168 B1), Matsumoto et al. (US 5,024,423 A), and Rubenstein**

**(US 4,704,985 A), as applied to claim 16 above, and further in view of Donovan (US 5,573,814 A).**

The combined teaching of Matsunaga, Matsumoto, and Rubenstein is detailed above. None of these references teach that overspray of the insulating material is withdrawn by disposing a volume of reduced pressure air proximate the spray gun. Donovan teaches a method in which the interior surface of a hollow article is coated by thermal (plasma) spraying utilizing a spray gun (1:1-67). Overspray is removed from the interior area of the hollow article by applying a vacuum proximate the spray gun (2:12-18 and 3:7-47), thereby eliminating waste coating material (1:60-61). It would have been obvious to one of ordinary skill in the art to modify the method of Matsunaga, Matsumoto, and Rubenstein, so as to remove overspray according to the method of Donovan. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of successfully eliminating waste coating material.

**15. Claims 20, 22, 23, and 16-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al. (US 6,197,168 B1), Matsumoto et al. (US 5,024,423 A), and Rubenstein (US 4,704,985 A), as applied to claim 19 above, in further view of Muehlberger (US 3,740,522 A).**

With respect to claims 20 and 27, the combined teaching of Matsunaga, Matsumoto, and Rubenstein is detailed above. None of these references explicitly state that the thermal (plasma) spray gun is cooled. Muehlberger teaches a thermal (plasma) spray gun that is water cooled to prevent overheating and, by extension, damage to the gun (7:37-9:53). It would have been obvious to one of ordinary skill in the art to modify the method of Matsunaga, Matsumoto, and Rubenstein, so as to cool the thermal (plasma) gun. One of ordinary skill in the art would have

been motivated to do so by the desire and expectation of avoiding damage to the gun by preventing overheating.

With respect to claim 22, Matsunaga teaches that the conductive material is sprayed onto the interior surface of the hollow article (15:6-50 and 17:39-67).

With respect to claims 23, as noted above, Rubenstein teaches a method in which the interior surface of a hollow article is spray-coated utilizing a spray gun. The spray gun is attached to an extension arm, inserted into the interior area of the hollow article, and operated to spray said interior surface (abstract and Fig. 1). Such method results in long service life with little wear on the few moving parts of the coating apparatus (1:1-65). Since Matsunaga teaches the thermal spray application of the conductive material, it would have been obvious to one of ordinary skill in the art to spray the conductive material according to the method of Rubenstein. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of successfully coating the interior surface of the hollow article with the conductive material utilizing an apparatus with a long service life, little wear, and few moving parts.

With respect to claim 26, as noted above, Matsunaga teaches a thermal spray gun.

With respect to claim 28, none of the cited references explicitly state separately cooling the extension arm. Doing so would have been obvious to one of ordinary skill in the art to prevent damage from overheating.

**16. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al. (US 6,197,168 B1), Matsumoto et al. (US 5,024,423 A), Rubenstein (US 4,704,985 A), and Muehlberger (US 3,740,522 A), as applied to claim 23 above, in further view of Donovan (US 5,573,814 A).**

The combined teaching of Matsunaga, Matsumoto, Rubenstein, and Muehlberger is detailed above. None of these references teach that overspray of the conductive material is withdrawn by disposing a volume of reduced pressure air proximate the spray gun. Donovan teaches a method in which the interior surface of a hollow article is coated by thermal (plasma) spraying utilizing a spray gun (1:1-67). Overspray is removed from the interior area of the hollow article by applying a vacuum proximate the spray gun (2:12-18 and 3:7-47), thereby eliminating waste coating material (1:60-61). It would have been obvious to one of ordinary skill in the art to modify the method of Matsunaga, Matsumoto, Rubenstein, and Muehlberger, so as to remove overspray according to the method of Donovan. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of successfully eliminating waste coating material.

17. **Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al. (US 6,197,168 B1) as applied to claim 13 above.**

The teaching of Matsunaga is detailed above. This reference does not explicitly teach flushing the interior area with cooling air. Nevertheless, it would have been obvious to do so in order to either achieve the supercooling taught in the reference or to cool the substrate after thermal spraying so as to allow handling and further processing. Such cooling air being advantageously introduced from either the extension arm or another conduit, as both are equivalent means of introducing the cooling gas.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (571) 272-1419. The examiner can normally be reached on Monday through Friday, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
WPF 2/14/2004  
William P. Fletcher III  
Examiner  
Art Unit 1762  
**SHRIVE P. BECK**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 1700**